



Project STEP-UP

STEM Trends in Enrollment and Persistence for Underrepresented Populations



Generation Me: Influences of Students' Choice of Major

Casey George-Jackson, Ph.D.

Introduction

The choice of a major is an important decision for college students. For many, the discipline that they major in will lead to job opportunities in that field or a related field. For some students, the choice of college major allows them to explore personal interests, and may or may not lead to a job in their discipline after college. Other students pursue one major for their undergraduate program, and change fields for their graduate study. Regardless of what major students pursue in college, students' choices are influenced by others, their own interests, and their own motivations.

The need to increase the number of degrees awarded in the Science, Technology, Engineering, and Mathematics (STEM) fields for reasons of national economic competitiveness and in pursuit of equity for underrepresented groups (i.e., women, students of color, and low-income students) warrants investigations into who influences students' decisions to attend college and to major in STEM fields. Strengthening our understandings of the process by which students choose their majors may help inform efforts to increase the number of students, including underrepresented students, who enter into and obtain a degree in a STEM field. This brief highlights individuals who influenced undergraduate students' choice of current major. Comparisons are made by gender, race, ethnicity, class status, and type of major.

Data and Methodology

In 2010, undergraduate students at nine large, public, research universities were invited to participate in an online survey in order to gather data on their pre-college and college experiences, with specific attention given to experiences and decisions related to entering the Science, Technology, Engineering, and Mathematics (STEM) fields. Over 1,800 students responded to the online survey, with the majority (85 percent) of the students majoring in STEM fields. Their basic demographic information is provided in Table 1.

Students were asked who most influenced their decision to choose their current major. Respondents were asked to select only one answer from the following options:

- Guidance Counselor
- Parents
- Peers
- High School Teacher
- Minister
- Sibling
- Family Friend
- Other (please specify)
- I prefer not to answer

If students answered 'Other,' they were asked to specify their answer and provide additional details in a text box. Upon examining students' responses, it was determined that a large number of students had indicated 'Other' as the most influential person in their choice of major (n=741).

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Project STEP-UP

STEM Trends in Enrollment and Persistence for Underrepresented Populations



Table 1. *Demographic and Background Information of Survey Respondents (n=1,881)*

Variables	N	%
Gender		
Male	716	38.1%
Female	1,151	61.2%
Prefer not to Answer	14	0.7%
Race and Ethnicity		
White, not Hispanic	1,361	72.4%
Asian or Pacific Islander	218	11.6%
Latino/a	89	4.7%
Black, not Hispanic	81	4.3%
Other Race/Ethnicity	69	3.7%
Prefer not to Answer	52	2.8%
Native American or Alaskan Native	11	0.6%
First-Generation Status		
Yes	231	12.3%
No	1,639	87.1%
Prefer not to Answer	11	0.6%
Class Status		
Freshman	288	15.3%
Sophomore	393	20.9%
Junior	538	28.6%
Senior	633	33.7%
Prefer not to Answer	29	1.5%

Source: Project STEP-UP Survey, 2011; Author's Calculations

Given the high response rate for this option, the associated open-ended responses were then examined closely to determine if similar responses existed between different groups of students. The open-ended responses were classified by the following types of responses:

- Myself (n=488)
- Career or Earnings Goals (n=18)
- Other (n=235)

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STEM Trends in Enrollment and Persistence for Underrepresented Populations

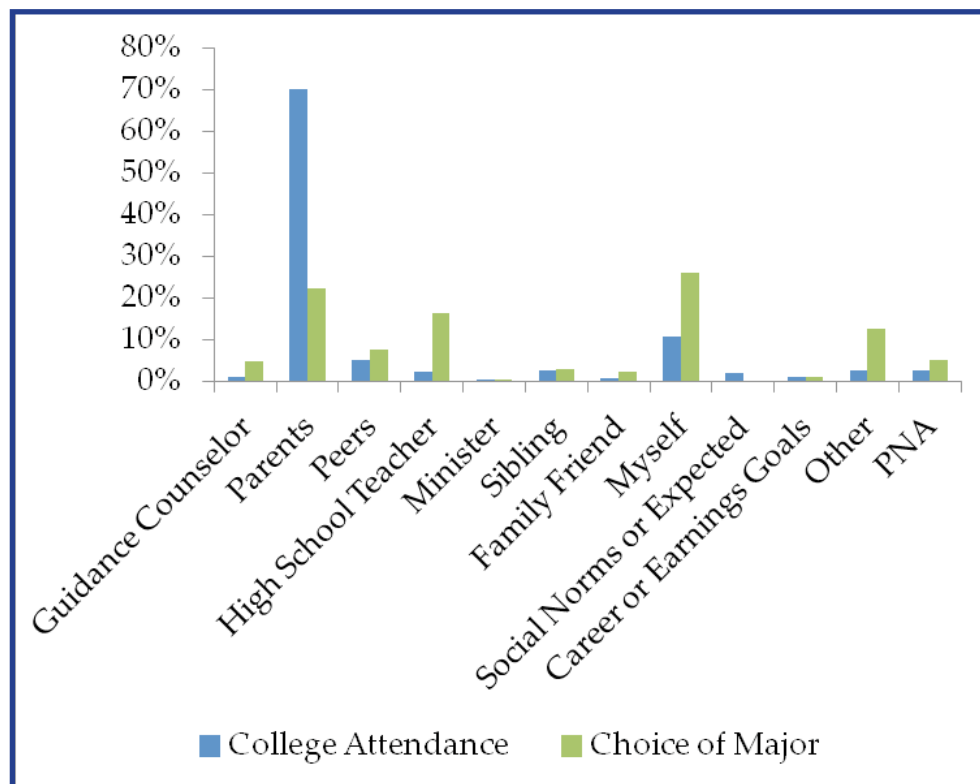


For the analysis that appears below, these now classified responses derived from ‘Other’ were then combined with the original set of choices for each survey question.

Of those who answered Myself as the most influential person to impact their current choice of major, 56.6 percent were female, 42.2 percent were male, and 1.2 percent preferred not to indicate their gender. Over 70 percent of these students were white, 8.8 percent were Asian or Pacific Islanders, 4.9 percent were Black, 5.1 percent were Latino, 0.8 percent were Native American or Alaskan Native, and 8.9 were of another race or preferred not to answer. By class status, 31.8 percent were Seniors, 30.9 percent were Juniors, 20.5 percent were Sophomores, and 16 percent were Freshman.

For comparison purposes, Figure 1 summarizes students’ responses for who influenced their decision to attend college¹ and the choice of their current major. It is important to note that students’ were asked to respond to who influenced their choice of their current major. It is likely that some respondents had already changed their major or intended to change their major at the time they completed the survey.

Figure 1. Influences of Students’ College Attendance and Choice of Major



¹ See George-Jackson, C.E. (2012). *Influences of Students’ College Attendance: The Importance of Parents*. Project STEP-UP. University of Illinois at Urbana-Champaign

Project STEP-UP

STEM Trends in Enrollment and Persistence for Underrepresented Populations



Note that while the majority of students credit their parents as having most influenced their decision to attend college, the highest response rate in terms of major choice influence originates from themselves. Specifically, 25.9 percent of students indicated that they themselves were the most influential person in making this decision. This response is closely followed by parents (22.2 percent), and a high school teacher (16.4 percent). Students who indicated they were the most influential person in their decision provided further explanation regarding their answer:

- *I chose my majors after taking a variety of introductory coursework & choosing the subjects that most interested me.*
- *No one [influenced my decision] at all. I picked it myself out of the hundreds of choices.*
- *My degree choice was 100% my own decision, though my parents certainly supported my decision.*
- *I did a lot of research and eventually concluded that this [major] was for me.*
- *I decided on my own. No one really influenced my decision.*
- *It was my choice and only my choice*
- *First Major: Parents; Current Major: Only myself*

While parents may most influence the decision to attend college, students' choice of major can be influenced by a number of factors, and most prominently by students' own interests and attitudes towards potential fields of study.

Differences by gender, race, ethnicity, class status, and type of major were explored, and the differences that are discussed in this brief are statistically significant at the $p < 0.01$ level.

Differences by Gender

By gender, a greater percentage of women named their parents as most influencing their decision to enter their current major, as compared to men (24.2 percent versus 19.3 percent, respectively). Over 17 percent of women acknowledged a high school teacher, in comparison to 14.7 percent of men. Slightly more men named themselves as having influenced their choice of major as compared to women (28.8 percent versus 24 percent, respectively).

Differences by Race/Ethnicity

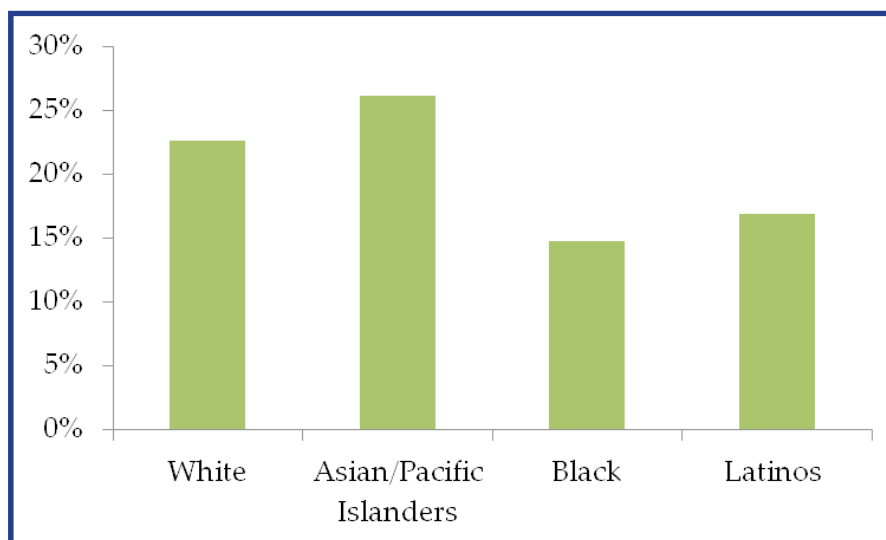
Across each racial and ethnic group, students themselves were the most influential person in their choice of major, with 29.6 percent of Blacks, 28.1 percent of Latinos, 25.6 percent of whites, and 19.7 percent of Asian/Pacific Islanders naming themselves as having most influenced their decision to pursue their current major. High school teachers were also influential for Latinos (20.2 percent, versus 11.1 percent of Blacks, 17.9 percent of whites, and 12.4 percent of Asian/Pacific Islanders). Figure 2 summarizes the influence of parents on students' choice of major for each racial and ethnic group.

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STEM Trends in Enrollment and Persistence for Underrepresented Populations



Figure 2. Parental Influence on Choice of College Major, by Race and Ethnicity



Parents were also most influential for white (22.6 percent) and Asian/Pacific Islanders (26.1 percent), in comparison to Black (14.8 percent) and Latinos (16.9 percent). Note that only in the Asian/Pacific Islander group were parents more influential than students themselves. Differences in the degree of parental influence are likely representative of the intersection of race, ethnicity, socioeconomic status, and parental education, and parental occupations.

Differences by Class Status

Students' class status (i.e., freshman, sophomore, junior, or senior) were examined next. Citing themselves as having the most influence on their choice of major was consistently the most popular response for freshman (27.1 percent), juniors (28.1 percent), and seniors (24.5 percent). Sophomores were the only group to indicate that parental influence was greater than their own influence in terms of choosing a major (26.5 percent versus 25.4 percent, respectively). Students who switched majors in college may be more likely to associate the decision to pursue a new major to themselves and their own motivations, rather than to others.

Differences by Type of Major

Figure 3 compares the influences of parents and students own influence by students' current college major. To examine influences of students' choice of major, by type of college major, the following groupings of majors were created:

1. Physical Science, Computer Science, Math and Engineering (PSCSME)
2. Agricultural and Biological Sciences (ABS)
3. Health Sciences and Psychology (HSP)
4. Non-STEM

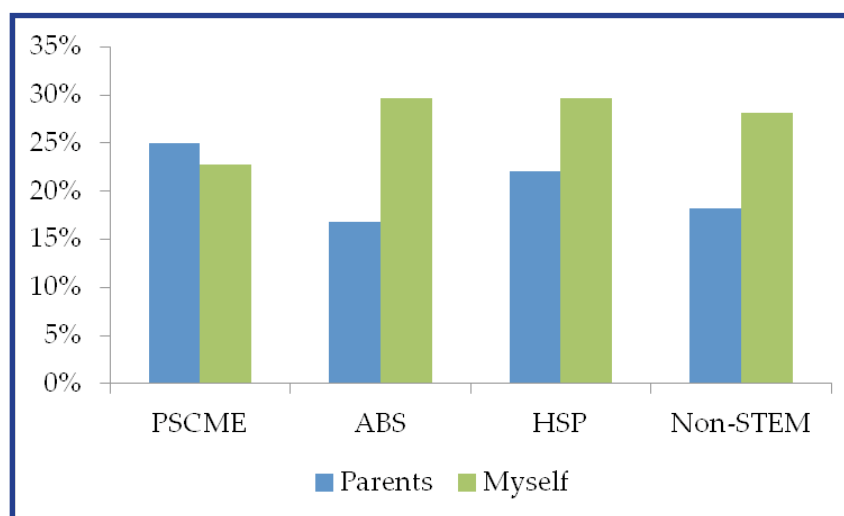
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Of the 1,881 students who completed the survey, 78 students (4.1 percent) had not yet declared a major or preferred not to respond to the question. These students are excluded from this particular analysis.

Figure 3. *Parental and Self Influence on Choice of College Major*



Parental influence was greater than students' own influence for students majoring in PSCSME (25 percent versus 22.8 percent, respectively). However for the other three types of majors, students own influence was greater than that of their parents. Nearly one-third of students in ABS (29.7 percent), HSP (29.6 percent) and Non-STEM (28.1 percent) named themselves as having the most influence on their choice of major. However, parents were still significant influences on their decision with 16.8 percent of ABS majors, 22.1 percent of HSP majors, and 18.2 percent of Non-STEM majors acknowledging the influence of their parents on their choice of major. Differences by first-generation status were not statistically significant.

Policy and Programmatic Implications and Conclusions

The analysis of the data reveals interesting insights into who influences students' choice of major. With so many students naming themselves as the main influence of this major decision for their postsecondary education, it is possible that the data reveals an attribution error. That is, some students assigned credit to one person (in this case, themselves) when really there is another influencer or multiple influences. The survey may have also captured the perceptions of influence for these students at a single point in time. Although difficult to currently assess, if the respondents are asked the same question at a future point in time, they may provide a different answer. In addition, the patterns of responses found in this dataset may reflect the attitudes and perceptions of this generation of students. For now though, a significant portion of the students think of themselves as the main influencer on the decision of their major. Efforts to increase students' entrance into a specific type of major of major—namely the STEM fields—should focus on educating and informing the students themselves that

Project STEP-UP

STEM Trends in Enrollment and Persistence for Underrepresented Populations



these fields are a viable option for their college major and can lead to a variety of interesting career opportunities. Certain approaches, such as awareness or marketing campaigns, social media efforts, and social networks may help informally introduce the idea of majoring in STEM to students and steer their choice of major in a particular direction.

About the Author

Casey George-Jackson, Ph.D., is the Project Director and Research Associate for Project STEP-UP (STEM Trends in Enrollment and Persistence for Underrepresented Populations). Her current research investigates issues of underrepresented students' access to and retention in higher education, including, but not limited to, the STEM fields. Dr. George-Jackson also serves as an Adjunct Assistant Professor in the Department of Educational Policy Studies at the University of Illinois at Urbana-Champaign.

About Project STEP-UP

The STEM Trends In Enrollment & Persistence for Underrepresented Populations (STEP-UP) project is a study that is investigating the underrepresented undergraduate students' participation in the Science, Technology, Engineering, and Mathematics (STEM) fields at large, public, research universities. STEP-UP focuses on the experiences of undergraduate women, students of color, and low-income students in STEM majors, and factors that impact their enrollment, persistence, and degree completion in the sciences. STEP-UP project is generously funded by the National Science Foundation (NSF), the Ford Foundation, and the Alfred P. Sloan Foundation.

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